

WE CLAIM:

- 1 1. A method of fabricating an ion optic device comprising the steps of: shaping a
2 ceramic material into at least a portion of the ion optic device; and
3 covering at least a portion of the shaped ceramic material with at least one material
4 selected from a group consisting of a conductive material and a resistive material.
- 1 2. The method of claim 1 further comprising the step of removing a portion of
2 the covering material.
- 1 3. The method of claim 1 wherein the ceramic material is a material selected
2 from the group consisting of a ceramic, a glass, and a glass-ceramic.
- 1 4. The method of claim 1 wherein the conductive material is metal.
- 1 5. The method of claim 2 wherein the step of shaping a ceramic material
2 comprises providing a substantially cylindrical bore in the ceramic material; and
3 wherein the step of removing a portion of the covering material comprises
4 removing at least two portions of the covering material on opposing surfaces of the interior of
5 the bore to create at least two separate, opposing areas of covering material.

1 6. The method of claim 2 wherein the step of shaping a ceramic material
2 comprises providing a cavity in the ceramic material; and
3 wherein the step of removing a portion of the covering material comprises
4 removing at least one portion of the covering material circumscribing the interior perimeter
5 of the cavity to create at least two substantially parallel bands of conductivity on an inner
6 surface of the cavity.

1 7. The method of claim 6 wherein the cavity extends through the ceramic
2 material; and
3 further comprising the step of attaching a conductive grid over one end of the cavity.

1 8. The method of claim 6 further comprising the step of separating the ceramic
2 material into a first portion and a second portion; and
3 joining the first portion and the second portion back together with a
4 conductive grid therebetween.

1 9. The method of claim 2 wherein the step of shaping a ceramic material
2 comprises providing a cavity having a blind end in the ceramic material;
3 wherein the step of covering at least a portion of the shaped ceramic material
4 with at least one covering material comprises covering at least a portion of the blind end in
5 the interior of the cavity with a conductive material.

1 10. An ion optic device for manipulating ions in a vacuum, comprising:
2 a ceramic substrate having a cavity therein; and
3 a conductive coating on at least a portion of an interior surface of the cavity,
4 the conductive coating provided for receiving an applied voltage to act upon the ions.

1 11. The device of claim 10 wherein the cavity is a substantially cylindrical bore;
2 and
3 wherein the conductive coating is provided in at least two separate areas on opposing
4 surfaces of the bore.

1 12. The device of claim 11 wherein the at least two separate areas of conductive
2 coating are separated by secondary bore having an axis parallel to the central bore.

1 13. The device of claim 10 wherein the cavity has a blind end and wherein the
2 blind end is coated with the conductive coating.

1 14. The device of claim 10 wherein the conductive coating is provided in at least
2 two separate bands circumscribing the cavity.

1 15. The device of claim 10 wherein the cavity has an open end and the device
2 further comprises a conductive grid attached to the ceramic substrate over the open end.

1 16. The device of claim 10 wherein the ceramic substrate is provided in at least
2 two portions and a conductive grid is provided between the two portions.

1 17. The device of claim 10 wherein the ceramic is a glass-ceramic.

1 18. The device of claim 10 wherin the cavity has an open end and the device
2 further comprises an electrode member attached to the ceramic substrate over the open end.